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TELEPHONY

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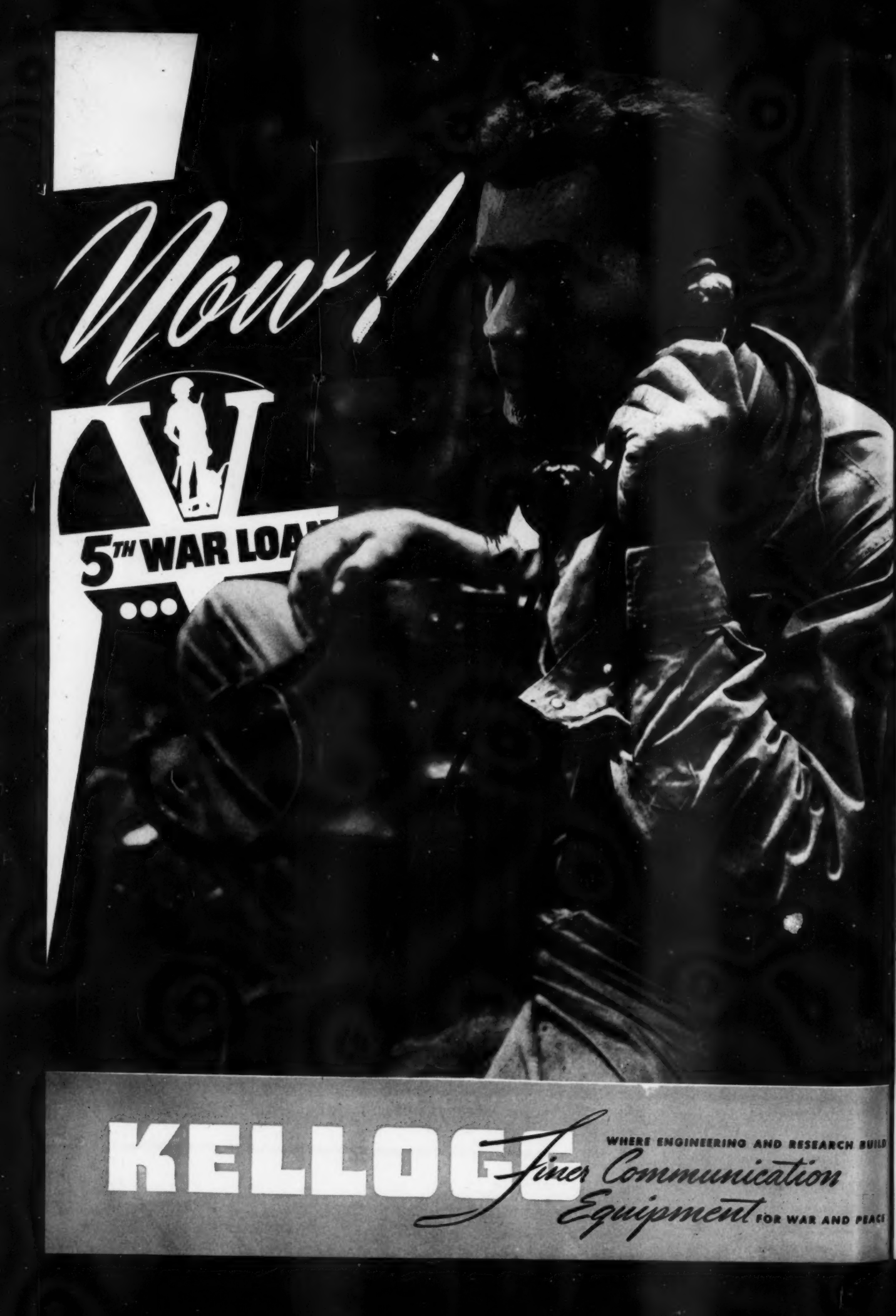

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SMALL EXCHANGE CIRCUIT ANALYSIS

By Harry E. Chapman

Chief Dial Switchman, Intra-State Telephone Co., Galesburg, Ill.

LEICH Electric Co. circuit No. C-4803 indicated in *Fig. A* is a trunk circuit used in conjunction with Leich No. 4809 cord circuit which will be explained below. This circuit is provided with two jacks, one to be used for regular operation with negative battery on the sleeve to operate certain relays in the cord circuit, and one to be used for night service. For night service a connection may be set up to connect any extension with the main exchange when the PBX operator is not on duty. It will be noted that the sleeve of the night jack has no connection whatever.

The operation of this circuit is similar to many of those previously discussed. Ringing current from the main exchange flows over the tip of the line, through the 1 MF condenser, contacts 11 and 12 of relay B to the ring side of the line. Relay A operates, and ground on contact 11 lights the trunk line lamp. Another circuit from negative battery through the 300-ohm winding of relay A and the closed contacts 31 and 32 and contacts 31 and 32 of relay B to ground. This locks relay A in an operated position.

PART VIII. The seventh article in this series was published in the May 27 issue, page 28.

When a plug is inserted in the line jack, ground on the sleeve of the cord operates relay B. This action opens contacts 31 and 32 causing relay A to restore and extinguish the line lamp. Contacts 11 and 12 of relay B open the circuit to relay A. Relay A is actually the line relay and relay B is the cut-off relay. The closing of contacts 12 and 13 of relay B places the 1,000-ohm impedance coil across the line to provide supervision between the PBX switchboard and the main exchange. When through supervision is desired this impedance coil is omitted.

In our discussion of the Leich Circuit C-4809 we will treat features not heretofore considered. This circuit is primarily designed for common battery PBX operation, so arranged that talking battery and ground may be supplied from the main exchange. It may also be equipped for dialing if desired. One feature which differs from those already discussed is that supervisory relays C and D are wired in series with the ring side of the line. Battery flows through the windings of these relays with a condenser by-pass provided for the voice current.

Ring-back tone is provided to the calling subscriber through 50,000-ohm resistors connected across the contacts of each ringing key. The break contacts of the ringing keys are also sometimes fitted with condensers to provide ring-back tone but for this arrangement very high resistors must be used to obtain the same effect. This arrangement does, however, serve to absorb some of the "click" caused by the surge of cur-

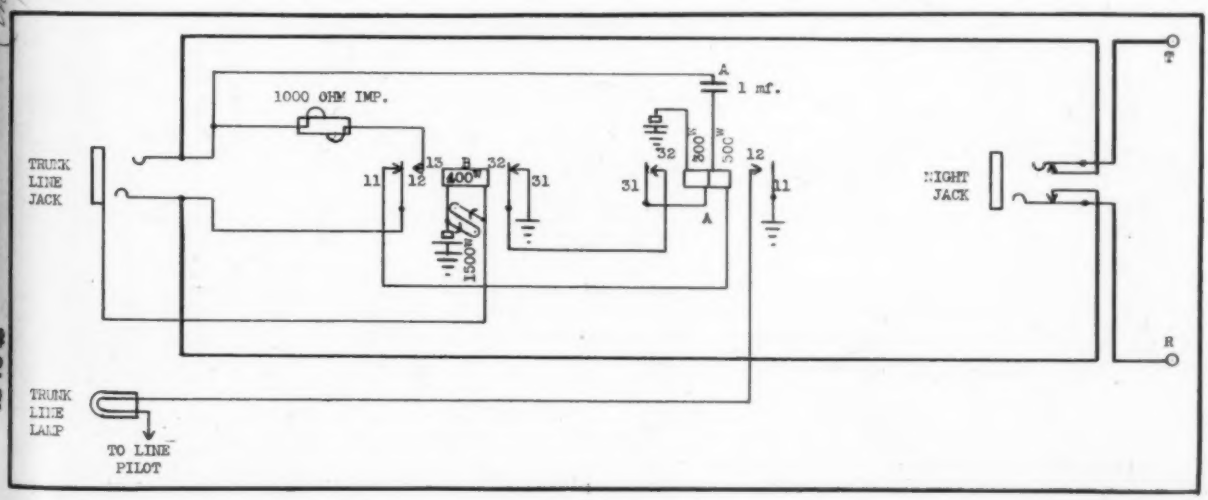


FIG. A

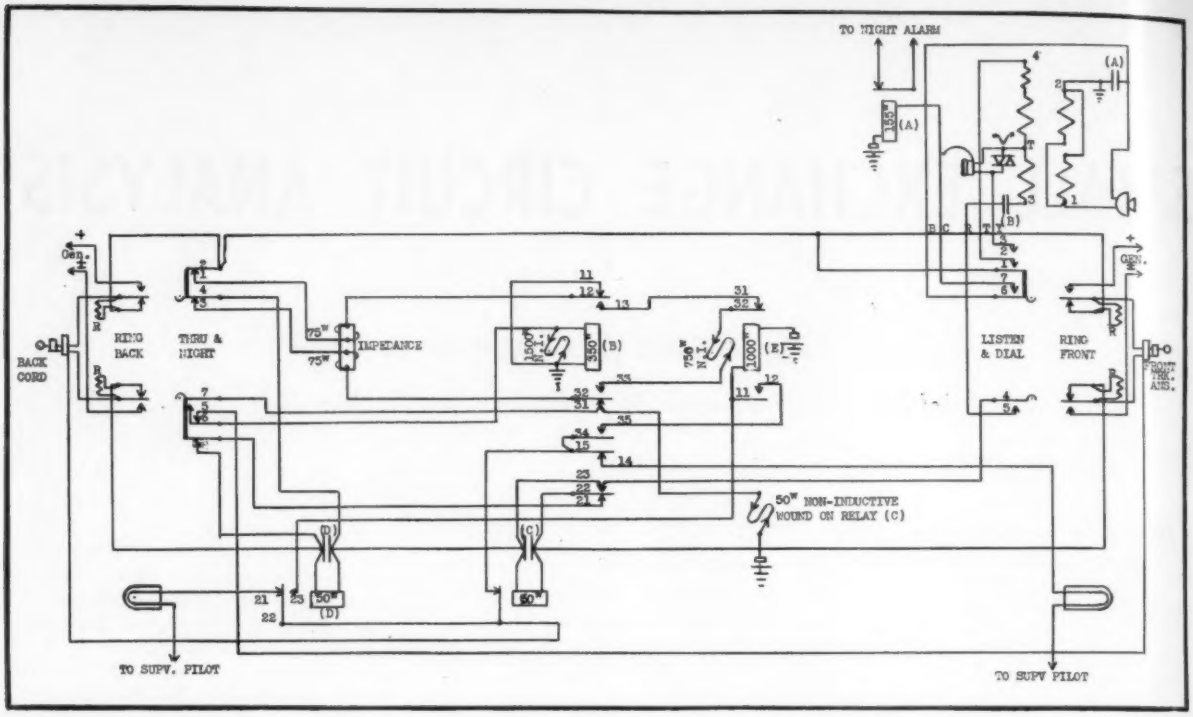


FIG. 1

rent from the condensers in the circuit being discharged as the key is operated.

The operator's circuit used in connection with this type of switchboard is of the familiar anti-sidetone type which has been previously discussed. This circuit, however, has a copper-oxide rectifier or "varistor" connected across the operator's receiver to absorb the clicks and current surges due to relay operation, etc. The varistor is indicated by "V" in *Fig. 1.*

Relay A of the operator's circuit in *Fig. 1* serves as an impedance coil in the battery feed to the transmitter and is equipped with contacts connected in the night alarm. When the operator's plug is removed from the jack and all listen-dial keys are normal, the battery circuit to the transmitter is opened, allowing these contacts to close, giving

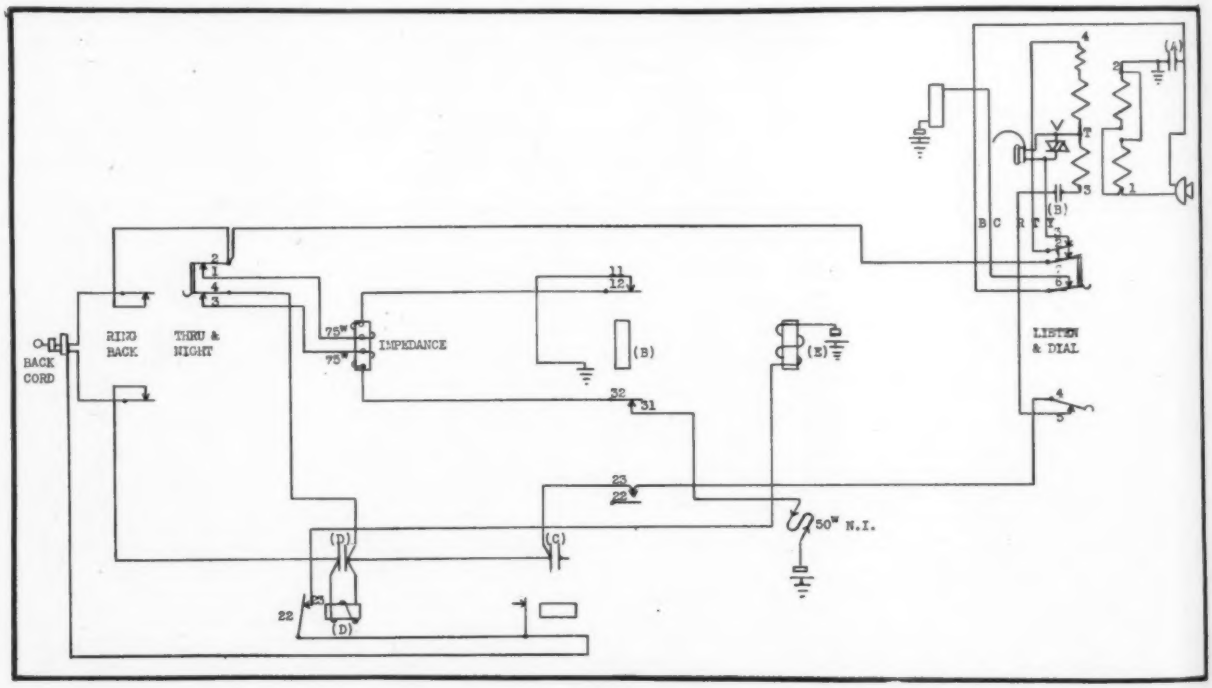


FIG. 2

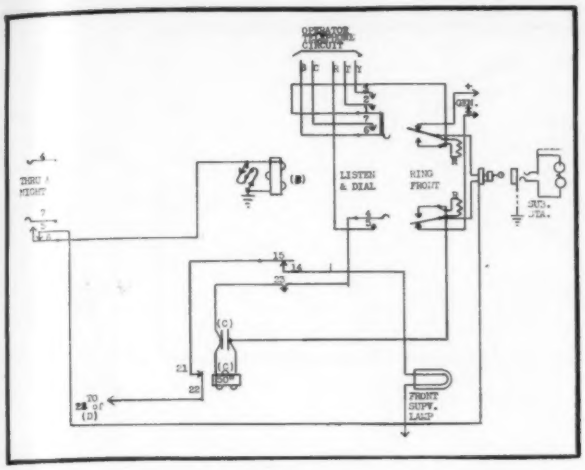


FIG. 3

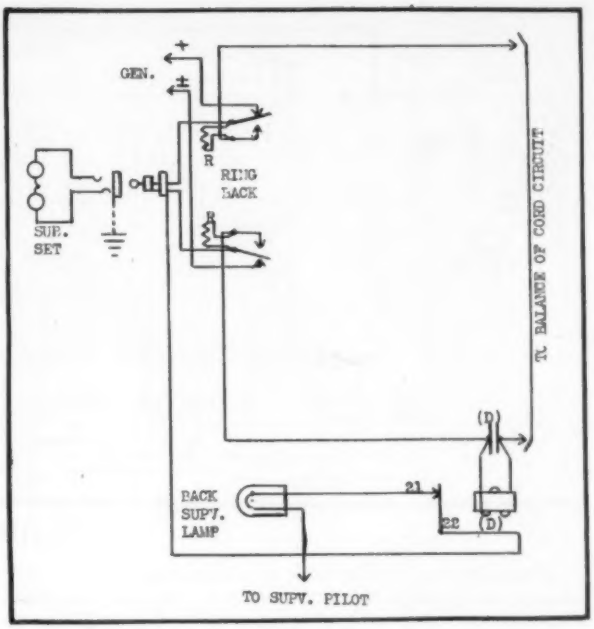


FIG. 4

an alarm when a supervisory lamp or line pilot lamp is lighted. This arrangement is desirable for use when the operator is not at the switchboard.

When answering an extension line with the back cord the circuit will be as indicated in *Fig. 2*. Battery and ground is supplied to the extension from the cord circuit. Ground at relay B and its 11 and 12 contacts is traced through one of the 75-ohm windings of the impedance coil, contacts one and two of the through-and-night key to the tip side of the line, through the line and the subscriber's telephone and back over the ring side of the cord circuit, through the 50-ohm winding of supervisory relay D, contacts 3 and 4 of the through-and-night key, the other 75-ohm winding of the impedance coil, contacts 32 and 31 of relay B and the 50-ohm non-inductive (N.I.) winding wound on relay "C," to negative battery.

The circuit is completed through the subscriber's instrument from ground at relay B to battery at the N. I. winding of relay C. Relay D will operate, breaking its 21 and 22 contacts and opening the circuit to the answering supervisory lamp. This operation also closes contacts 22 and 23 of relay D, completing the circuit from the sleeve of the cord to battery, through the winding of relay E, causing it to operate. However, since the contacts of relay E are dependent upon the operation of relay B to complete its function, it will have no effect at this time. The operator is connected to the circuit by the closing of the listening key. This key also carries contacts to the dial circuit which will be discussed later.

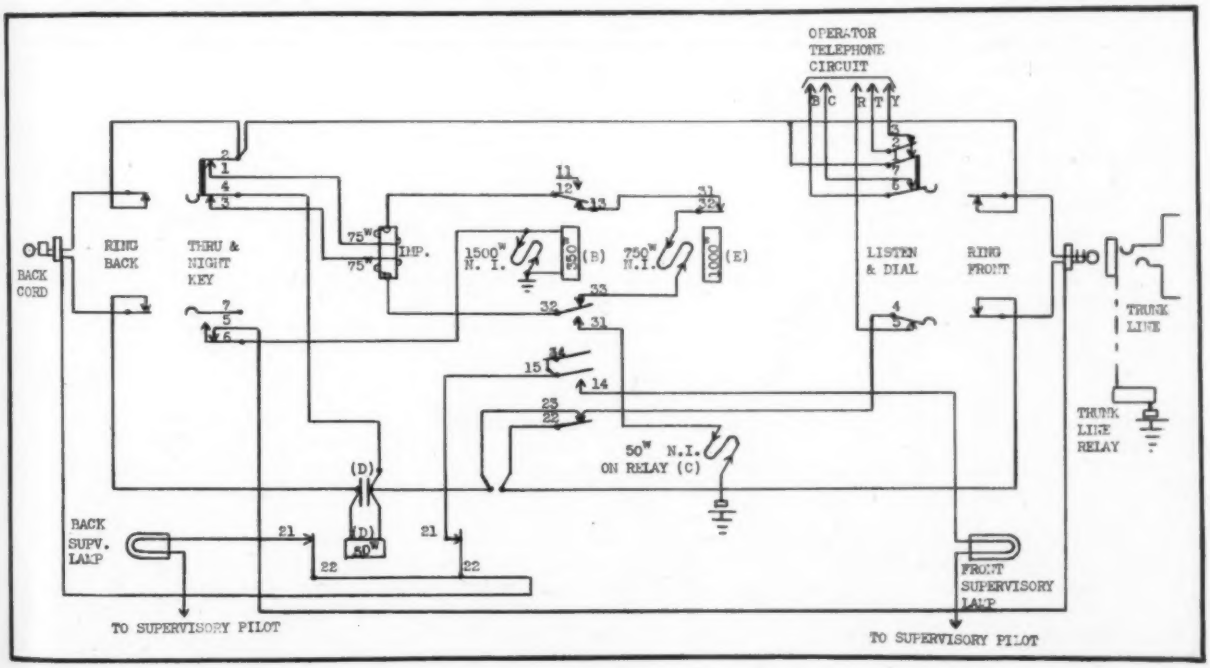


FIG. 5

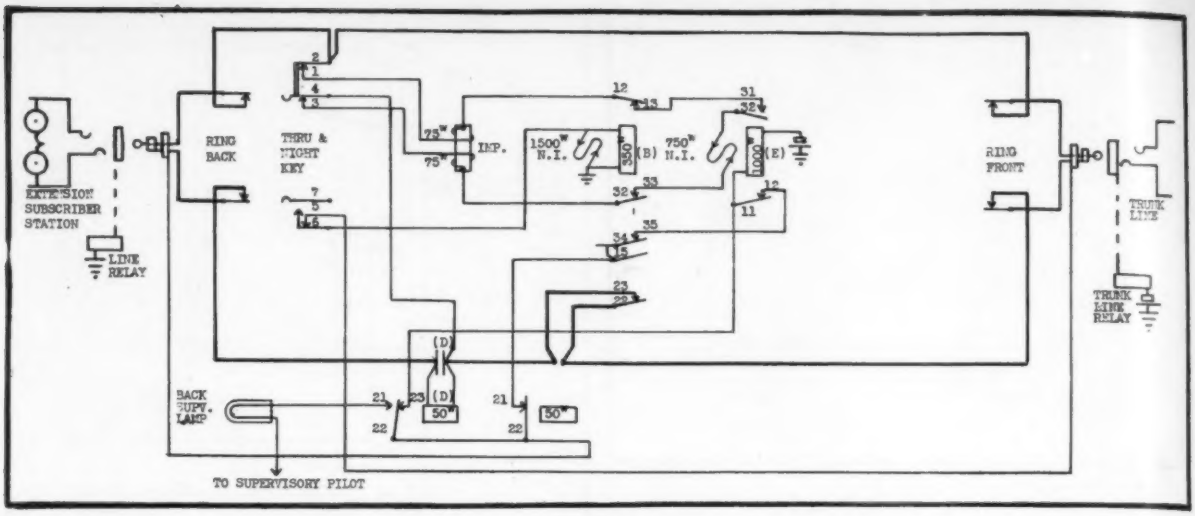


FIG. 6

Circuits previously discussed furnish battery to the subscriber through the windings of relays which also serve as impedance coils to prohibit voice currents entering the battery circuit. The circuit now under discussion utilizes a separate impedance coil for this purpose.

When the called number is on another extension line the circuit will function as indicated in *Fig. 3*. With the front cord inserted in the extension jack the ringing circuit will be as shown. Until such time as the called party answers there will be no relays operated. This is due to the fact that there is ground on the sleeve of the extension line and the sleeve of the cord through contacts 5 and 6 of the through-and-night key and winding of relay B to ground. This places ground on both ends of the winding of relay B, thus rendering it inoperative. Relay C does not operate until the called party answers. At this time battery to the called party will flow through the winding of the C relay, causing it to operate, opening its contacts and extinguishing the lamp.

Fig. 4 shows the circuit as it functions when the operator rings on a local or extension line with the back cord. Ground on the sleeve of the jack through the associated equipment will cause the back supervisory lamp to light. Because of the fact that the line circuit is open at the subscriber's instrument until the receiver is removed from the hook, relay D will not be operated. This permits the lamp to remain lighted until the subscriber answers, which in turn will operate relay D, opening its 21 and 22 contacts and extinguishing the lamp. This indicates to the operator that the party has answered.

This circuit is designed for using the front cord in answering all trunk calls which will be understood by referring to *Fig. A*. There is negative battery on the sleeve of the jack when the plug is inserted in the jack as shown in *Fig. 5*. This negative battery from the

(Please turn to page 28)

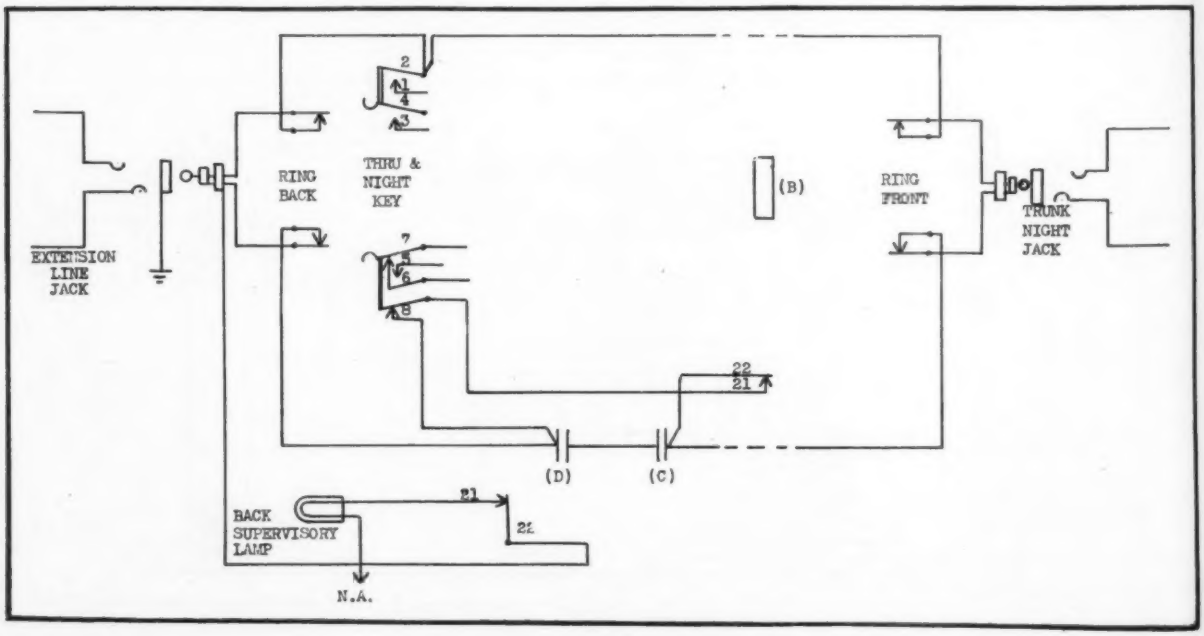


FIG. 7

Wage-hour administrator issues order calling for 40-cent minimum wage in telephone industry. . . . "Dream Articles" in newspapers predicting person-to-person radio communication in near future mislead public. . . . Wartime restrictions on Great Lakes communications canceled.

THE U. S. Wage-Hour Administrator, L. Metcalfe Walling, on June 21 finally announced his decision in the minimum wage rate case involving communication companies, including, of course, the telephone industry, both Bell and Independent. This decision, which affects telephone companies having more than 500 stations, is, briefly, to the effect that *"wages at a rate of not less than 40 cents per hour shall be paid under section 6 of the act by every employer to each of his employes . . ."* This result was generally anticipated in the light of a previous recommendation of a committee appointed by the administrator last September. This committee, known as Industry Committee No. 69, filed its recommendation on October 25, 1943, for a 40-cent minimum hour wage rate in the communication utility industry.

The wage order was designated to become effective July 17, 1944. This does not leave much time for employers who are faced with the difficult and delicate task of explaining and installing the new minimum wage adjustments so that they will be understood by the various employes affected and, what is perhaps more important, by those who are not affected.

In this respect the telephone industry is caught in the middle by two different federal wage regulations. On the one hand the wage-hour administrator says that all employes must make at least 40 cents an hour after next July 17. On the other hand the Director of Economic Stabilization has ordered that no higher wages should be paid by industry in general than those in effect on the day the Price Stabilization Act became effective, unless such increased wages are within the Little Steel Formula of adjusting wage increases to correspond with the increase in general living costs, as shown by the U. S. Bureau of Labor Statistics.

As to employes of telephone companies under the wage-hour administrator's jurisdiction who do not make 40 cents an hour, the recent decision of the administrator, of course, prevails automatically. But consider this situation: Take the example of a small telephone company which has some junior employes making 35 cents an hour and some of the other employes who have served longer or better, or are a little more experienced, who are now making 40 cents an hour. The wage-hour decision makes such a company increase the 35-cent junior employes to the level of 40 cents an hour. But it does not of itself give the employer any authority to make a corresponding adjustment to take care of the employes who are already making 40 cents an hour. Needless to say, if such an adjustment is not made, the older employe is likely to feel something like those biblical laborers in the vineyard who toiled all day only to see some 11th hour workers come in and get the same money.

This much can be said concerning this situation: Where the employes now making 40 cents an hour have not received pay increases during the last couple of years to correspond with the percentage increase in the cost of living—in other words, if they are eligible for a rate increase under the Little Steel Formula—then it is perfectly all right for telephone companies to allow such increases. But where proposed wage increases of the older employes would not be qualified under the Little Steel Formula, it would be necessary to secure permission under the terms of the directive issued by the Office of the Director of Economic Stabilization.

* * *

At its recent national convention in Denver, the National Federation of Telephone Workers decided to raise a war chest for a campaign against the rival organization efforts within the telephone industry of the American Communications Association, affiliated with the CIO. The association approved of a per capita dues' levy of 10 cents a month to continue to expand its program, including a drive to complete the organization of the tele-

phone industry and "ejection of the CIO which has been trying to march in."

Other projects include continuance of the federation's drive for "equitable representation for independent unions on the National War Labor Board and other governmental agencies," expansion of the federation's educational and publicity program, statistical and research work, and action on the post-war problems which will face the industry as soon as hostilities cease.

The Denver convention heard congratulatory communications from government officials and elective officers, including one from President Roosevelt, which was the first order of business. President Roosevelt's message to the telephone workers' federation was as follows:

"Telephone workers, like so many others in the field of public service, are highly essential to the war effort. Their record in the production of telephone equipment and in efficient maintenance of our telephonic communication system under great pressure is one of which we can all be proud.

"That holds true of our great army of white collar workers. They do their jobs day in and day out, with little praise or glory and often with none too high rewards. They keep the home front bulwarked and are deserving of their full share of the praise due American wage earners for our mighty war production effort."

J. A. Beirne of New York City was re-elected president of the federation, J. J. Moran of Pittsburgh, vice president, and C. W. Werkau of Chicago secretary-treasurer.

* * *

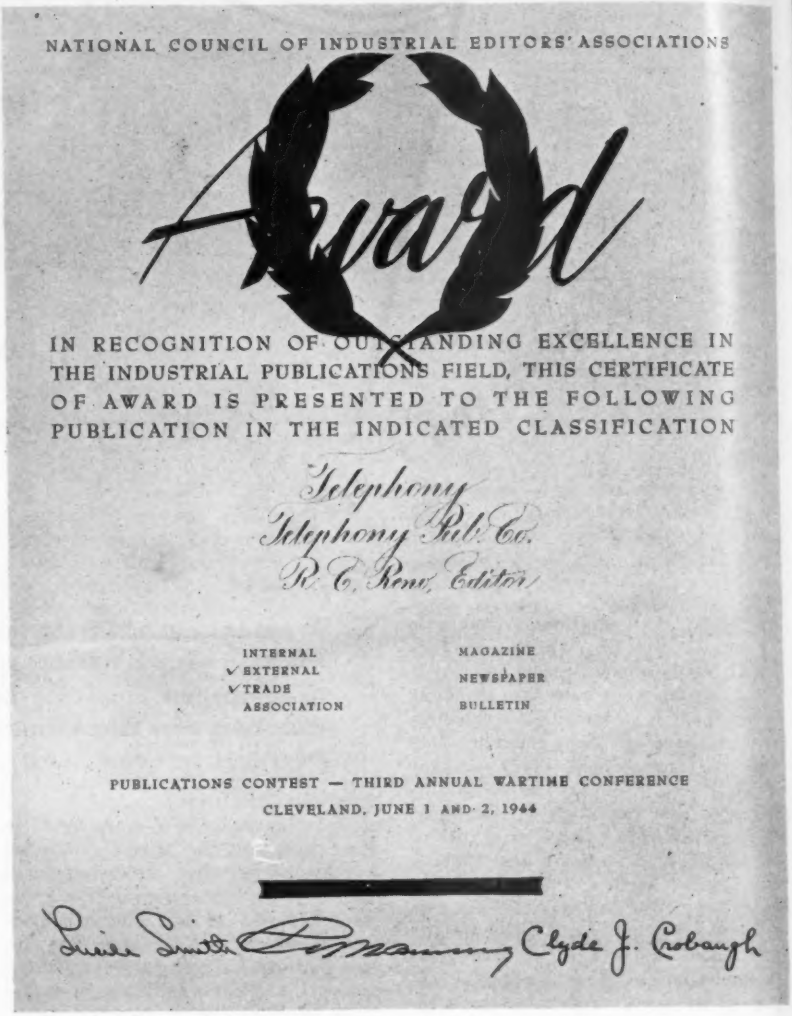
Recent experiments by the Santa Fe railway with radio telephones to facilitate communications between the engineer and the crew in the caboose of mile-long freight trains has started an epidemic of "dream articles" in newspapers and magazines which like to feature "world of tomorrow" stuff for circulation building because it has a high caliber of reader interest. It is certainly legitimate and justified from the standpoint of good business and sound journalism for periodicals and the press to go in for these interesting bits of crystal gazing.

But in the process, thoughts are being expressed and ideas are being circulated which might prove mischievous over the long range from the standpoint of the telephone industry. Take, for example, the following two paragraphs from an editorial which appeared in the New York *Times* on June 22.

". . . . Even if railway managers decide that hand and lantern signaling are not to be abandoned, there is no doubt that the radio-telephone is here to stay and that it will play its part in industrial and home life. No battle is fought without it. In the air the pilots of bombers communicate with tanks on the ground to coordinate an attack, and patrols in advanced posts have their 'walkie-talkies' to inform commanding officers what may be of importance and to receive orders. These advances we must attribute to the miraculous electron tubes, which have been shrinking to thumb-nail size yet growing in power as the result of wartime research. Today a satchel will hold most of the apparatus required to talk over a distance of a few miles.

"When the war ends, these compact instruments will be used on corporation farms that cover thousands of acres. Men on tractors or threshers in the field will talk at any time to the central office. The old bell that once summoned hands for dinner may be doomed even on smaller farms. Like

TELEPHONY WINS EXCELLENCE AWARD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PUBLICATIONS CONTEST — THIRD ANNUAL WARTIME CONFERENCE
CLEVELAND, JUNE 1 AND 2, 1944
Clyde J. Colbaugh

Reproduction of the certificate of award, "in recognition of outstanding excellence in the industrial publications field," won by TELEPHONY in the publication contest held during the Third Annual Wartime Conference of the National Council of Industrial Editors' Association in Cleveland on June 1 and 2.

In accordance with the rules of the contest, that copies of any one issue be submitted, TELEPHONY entered its popular 1943 *Special Signal Corps Issue*. In presenting the award, Miss Jessie Bakker, secretary of the National Council of Industrial Editors' Association, said:

"Since more than 1,500 publications in all classifications were submitted and only a total of 58 awards were made, you are to be congratulated on having submitted a winning publication."

the captains of ships at sea, the drivers of long distance motor trucks will no longer be cut off from the world when they are on the road. If, as it is predicted, traffic on the highways increases in density after the war beyond anything that we have known, it is possible that every car will have to carry a radio loudpeaker so that the driver may be properly called down by some policeman in a traffic tower when the speed limit is exceeded or there is some other infraction of the law."

None of these ideas are new—as ideas. Some of them have been kicking around since the active days of Alexander Graham Bell and Marconi. The trouble is that the practical explanation why it won't work—or at least won't work out so glamorously as they can be pictured by Sunday supplement writers—does not make such interesting reading. Newspapers and magazines don't like to publish "wet blanket" articles.

Thus, a demand is created in the mind of the public which may take years to fulfill—may never be fulfilled. And when it is not fulfilled there may grow a suspicion that some "vested interest" or "monopoly" or other insidious force is keeping the common people from their rightful heritage of magnificent new discoveries. It is on suspicions such as these that the germ of state socialism thrives.

When Marconi was still an obscure inventor, sending and receiving telegraph signals over a mile or two, European journals were filled with exciting articles about people being in constant communication with each other through portable radio devices which would revolutionize industry and society itself.

And here it is, nearly a half century later and these things have not come to pass—certainly not in the dramatic way presented in a 1901 copy of a French publication which this writer happened to run across in the Congressional Library several weeks ago. Even then imaginative engineers were predicting that people in London would "soon be talking to somebody in the Andes mountains, carrying the necessary apparatus around in their pockets."

But it has only been within the last couple of decades that radio broadcasting, which is still a far cry from mass point-to-point radio communication of the entire population, has come into general use. World War II has stimulated the use of the walkie-talkie, with its provocative possibilities. But as yet only in the limited field of military experience is the widespread use of this device suitable. Anybody who tried to use a walkie-talkie in civilian life in the United States for purposes of private communication would pretty soon be picked up by FCC monitors and locked up for violation of a federal law.

But the Sunday supplement writers don't talk about such unpleasant realities. They don't discuss the blunt truth that the radio spectrum is now so limited as to prohibit the assigning of a wave length to every man, woman and child in the world, like a social security number, so that private radio-telephone, point-to-point communication could become universal. They don't dwell on the myriad of financial, economic and regulatory problems which make it necessary to have a federal statute prohibiting any civilian use of the radio air lanes without a special license from the FCC.

Surely these magnificent possibilities of radio-telephony are all feasible from an engineering standpoint today, just as they were to some extent 10 years ago. But the practical difficulties forbid their indiscriminate use and will continue to inhibit them for some time to come, editorial soothsayers notwithstanding.

There is, in all this literary star gazing into the possibilities of radio telephony in the peaceful new world to come, a warning as well as a danger for the telephone industry. It is an admonition for the telephone industry, as such, to stay on its toes so that when these new techniques do make their appearance in the field of telephone communication they will be established and maintained under the auspices of the telephone industry. Thousands of boys who are going to come back from this war entirely familiar with use of such devices as walkie-talkies are going to need some pretty clear explanations of why they can't just stick them in their automobiles and talk with friends and home while running around the city, just like police squad cars today talk with their precinct headquarters.

In other words, when the automobile telephone does come to pass, as it probably will at some future time, the present telephone industry wants to make doubly certain that it has the resources and information to be the first to make it available. Any other course would simply invite strangers to come into the local community and set up radio communication facilities which could compete with and seriously damage the telephone industry of the future.

Fortunately, there is good reason to believe that the telephone industry is even now at work on plans that will make it possible for the industry to develop a program for using radio communication channels in the telephone field. No details, of course, are available at this early stage of the game, but it should be encouraging and reassuring to everyone in the industry to know that responsible thinkers and planners have something pretty good cooking on the front burner.

Ultimate development of these plans may take some time. Furthermore, they probably will not be big money-makers —at least during the early years of their development. But the very fact that radio-telephony in continental United States has a high "nuisance value" should be sufficient for the industry to bend every effort to its development *as a telephone development*, rather than leave it hanging around as a potential source of competitive, if not political, dynamite.

Just as a slight example of this "nuisance value," there is the possibility that radio-telephone circuits for mobile communication might also be used to connect remote farm subscribers located on the fringes of the radio service area. This alone, even at a book loss, would abate a potential source of political interference which has already slightly threatened the industry and will continue to threaten it, more and more, as the constant development of rural electrification under political auspices stimulates a parallel demand for more and more rural telephony.

Miracles Do Happen

»A former subscriber of The Community Telephone Co. of Wisconsin recently wrote the company: "A few years ago I lived in the rural section and during that time I shot and threw stones at the insulators of your telephone lines. God has laid it upon my heart to make restitution and pay for the damages which the telephone company has suffered because of me. I do not know the cost of repairing your lines, but now feel obligated to pay something and you will accordingly find enclosed $10.00. Please forgive me." — Contributed by B. H. PIEPMEIER.

TTLE

EICH SWITCHBOARD KEY

OLUNTEERED FOR EXTRA WAR SERVICE

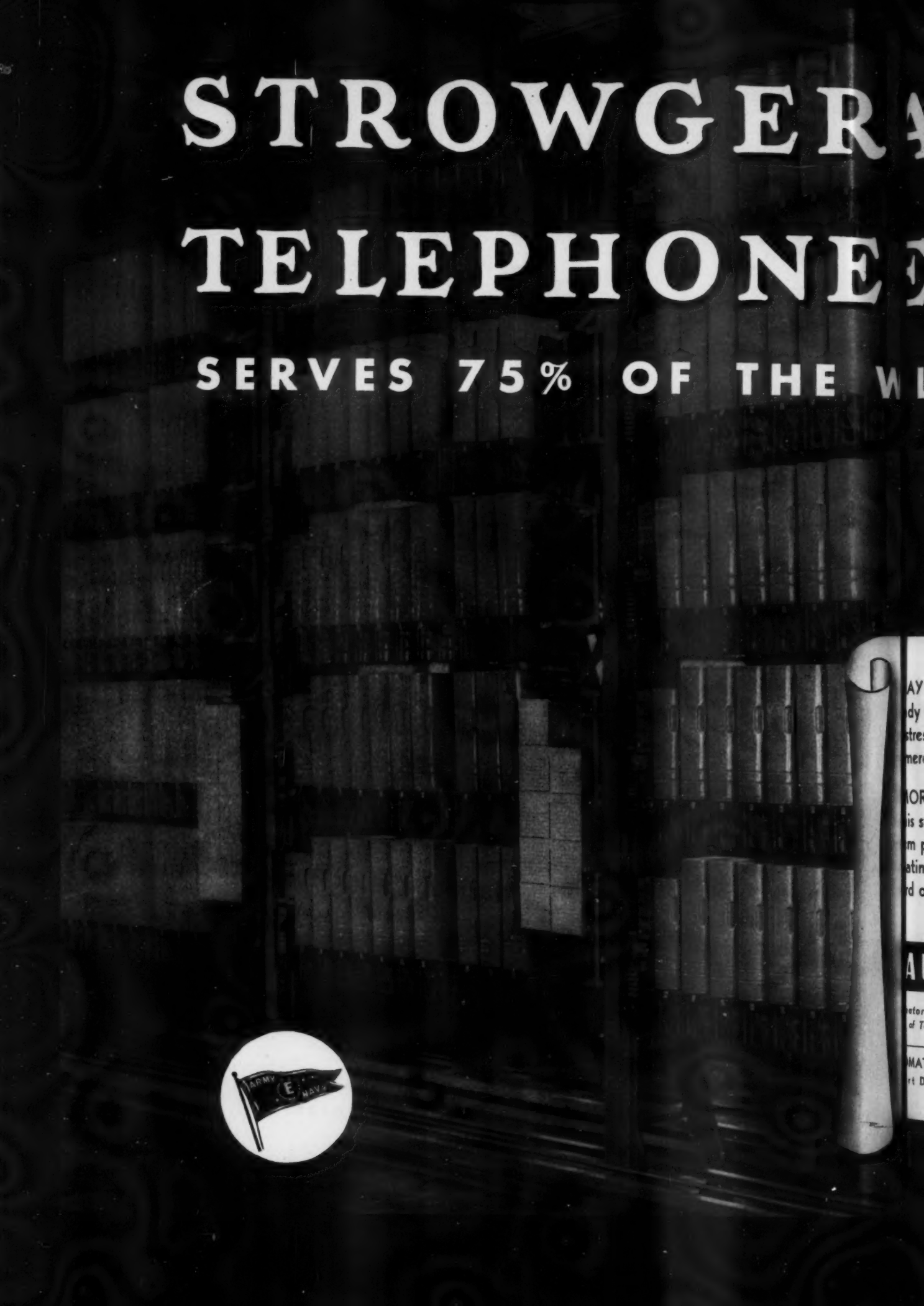
The mere fact that huge quantities of Leich keys are serving in war communications equipment is definitely not news. True, they are doing a tremendous job in a splendid manner, but in this respect they—like all Americans and American equipment—are simply doing what you would expect of them.

It is the extra war jobs of Leich keys that are really news-worthy. Here's where their sterling qualities of simplicity, stamina, and longevity earned them assignments far beyond their regular line of duty. For example, makers of war electrical control devices wrote specifications covering "Switches, Hand Lever—For Unfailing Operation Under Most Severe Conditions". Were new designs required? Was frantic new tooling needed? No, for standard Leich keys fitted the requirements precisely.

Credit for this extra war service of Leich keys belongs entirely to the progressive operating telephone man. His loyalty to telephone manufacturing organizations provided the machines and mechanics for their precision production. His insistance that "switchboard keys must not fail" created their design. The fact that these keys did not fail in the face of their greatest obligation is just another one of his many contributions to the war effort.

LEICH

MANUFACTURERS OF TELEPHONES, SWITCHBOARDS AND RELATED APPARATUS SINCE 1907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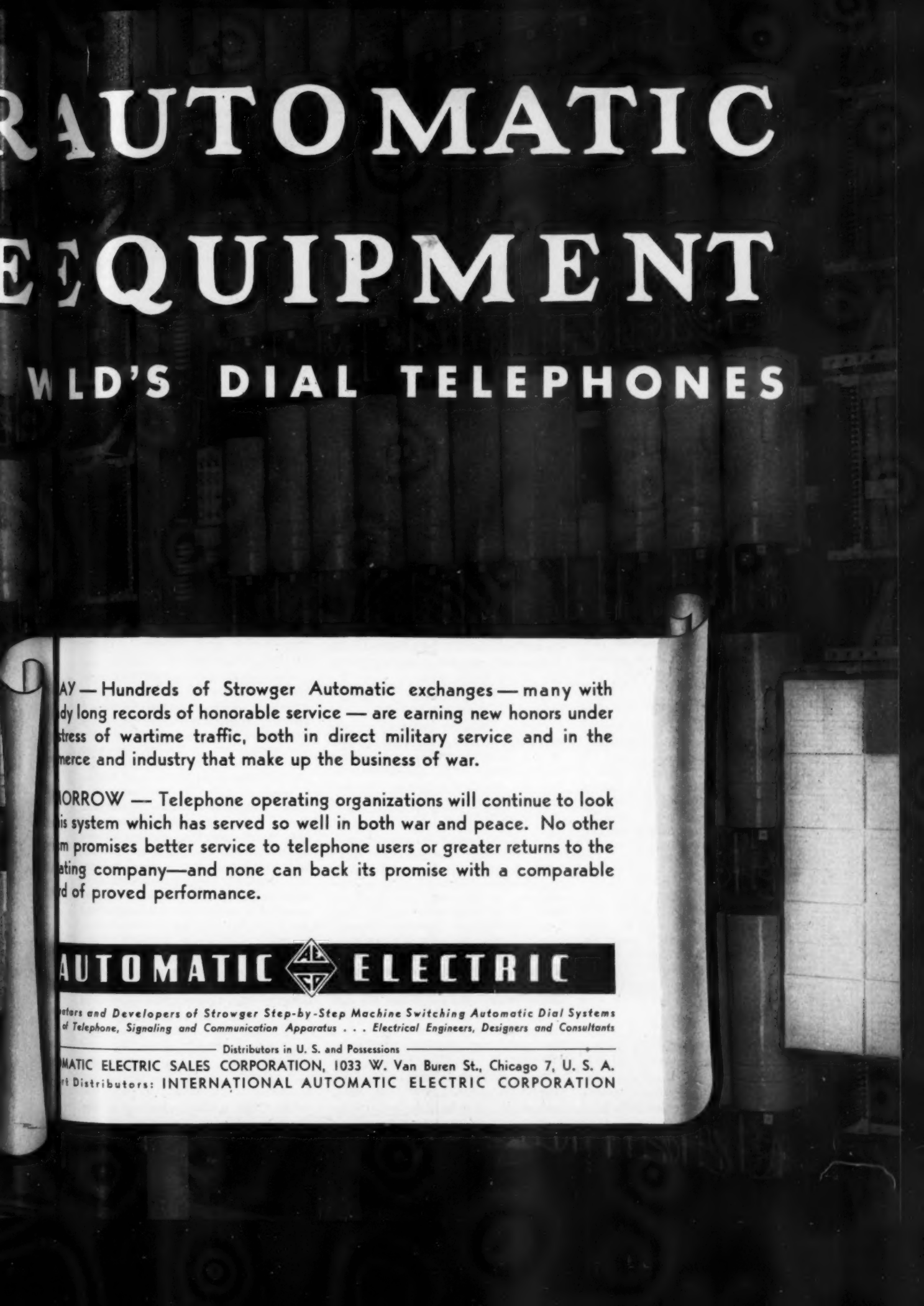
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AY — Hundreds of Strowger Automatic exchanges — many with dy long records of honorable service — are earning new honors under stress of wartime traffic, both in direct military service and in the merce and industry that make up the business of war.
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THE PLANT MAN'S NOTEBOOK

BY RAY BLAIN • TECHNICAL EDITOR

ACCORDING to Freling Foster in "Keeping up with the World," an article published in the May 27 issue of "Colliers," the San Francisco office of the OWI writes a daily five-hour radio program of news and propaganda in the Japanese language and beams it to Japan over five powerful short-wave stations. As the Japanese-Americans working on the program live in Denver because of their evacuation from the coast, the OWI teletypes the scripts to them and they translate and telephone them back to San Francisco, a distance of 1,300 miles, so that recordings of their voices may be made for each broadcast. The item did not state, but it is assumed that this is authorized telephone recording.

* * *

Telephone installers will find it worth their while to carry a piece of paraffin for use in starting wood screws. It will be surprising how much easier it is to set screws after a small amount of paraffin is rubbed on the threads. Some installers use a cake of soap for this purpose but, this may cause rust and corrode the screw so as to make its removal difficult.

* * *

It is noted that general interest is on the increase for a lightweight and comparatively inexpensive earth auger for pole hole digging. We believe that a machine of this type would prove popular with all telephone companies in the postwar period.

* * *

Various Bell companies are making use of mobile attended pay-station units in Army camps. These units consist of an attendant's desk together with booths which are installed in a special bus, known as a "Telebus." Telebus attendants pass the details of a call to a long distance operator who rings the telebus when the call is ready. The attendant then pages the serviceman and directs him to the booth to which his call has been connected. This method of operation provides maximum use of equipment and circuits. In our opinion, the telebus will also have a wide peacetime application for the average telephone company.

* * *

George Tapper tells one about the student troubleshooter who thought covers were placed on protected cable terminals to prevent fuses from blowing out on windy days.

* * *

Captive balloons present a good target for lightning and when equipped with a telephone, protection presents a real problem. It is stated, however, that the stardard telephone-type substation protector proves adequate for this aerial telephone line.

* * *

We received a letter recently from the manager of a small exchange complaining of difficulties now being experienced in locating wet cable trouble when the leakage is not heavy enough to stop a tone. The manager also stated that this trouble is made even more serious by the fact that so many of their qualified men have entered the armed forces. We appreciate the difficulties being experienced by small exchange operators and will try to help them solve any problems which may face them.

Slight moisture in cable which will ring and crosstalk but will not stop a tone usually is difficult to locate. Some troublemen have success by applying a high voltage to break down the fault so that a positive location can be obtained. This method, however, is not without danger on old cables for it may break down insulation at some other point and cause more trouble than it clears.

The pressure method is the best means we know to locate slight moisture in cables. Pressure may be applied to the cables by the use of nitrogen gas which is supplied in pressure cylinders. Perhaps the better method for small companies is to make use of the small compressor which supplies moisture-free air by means of a chemical drying arrangement.

The hose from the compressor is attached near one end of the cable to be tested, by using a special fitting. A gauge is attached with another special fitting near the distant end of the cable. The compressor is started and when the pressure on the gauge at the far end indicates about five pounds, testing is ready to start. By the use of soap flakes, make a thick lather in a bucket. Now ride the cable, and paint all splices and other suspicious sections of the cable. When an opening is found which will permit the air to escape, bubbles will form. If moisture can enter a cable, the air must escape. Often the escaping air will make a hissing sound which can be heard easily when riding the cable.

This may sound difficult but it is surprisingly easy. Even if the entire cable must be soaped, the task will not be difficult. This is a positive method of cable location and when all openings are found and closed, your cable troubles will probably be over for some time to come.

* * *

The Coast Artillery Journal of the

U. S. Army for March and April, states, "The application of preventive maintenance in the combat zone must be instinctive. Hence, the soldier's safety and that of his comrades will one day depend upon his diligent application to details of preventive maintenance procedures while he is in training." Good telephone men are good soldiers which is probably due in part to the fact that in their civilian work they are also trained in preventive maintenance methods.

* * *

Some of the larger telephone companies are beginning to realize that there is a definite need for emergency lighting. Not only should this lighting be made available for use in the exchange, but flood lights also are considered necessary for emergency line work and repair. Gasoline-operated generators are now available which may be used to energize a battery of flood lights. The complete apparatus for emergency flood lighting is available, mounted on a convenient trailer. No doubt this arrangement will be extensively used by telephone companies in the postwar period.

* * *

Frequent conversations with manufacturers indicate that they are serious in their plans for improved postwar intercommunication and public address systems. Paging systems of the voice type are also receiving considerable attention. It is hoped that telephone companies will consider the use of this equipment to increase their revenues. This border-line business, if properly handled, may develop into worthwhile earnings.

V V

Telephone and Phonetics Aid Yanks Overseas

When our men in the armed services go ashore in a foreign land, their dealings with the natives require at least a working knowledge of the language spoken there. So the Army provides its fighting men with phonetic language booklets, from which they learn to pronounce essential words.

Take the word telephone, for example: Italians pronounce it "tay-LAY-fo-no;" Russians, "tee-lee-FAWN;" Greeks, "tee-LEF-o-no;" North African Arabs, "tay-le-FOON."

Fortunately, the telephone itself "speaks any language," the men who go overseas point out. So wherever they go, they take telephones and equipment along, to serve the men in "no-man's-land" as well as those behind the lines.

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- Revolving Aerial Ladders (Model 4644)
- General Utility Compartments (Model 4804)

Today, with the tremendous pressure on the construction and maintenance crews, many utilities are in need of equipment of the character of American Utility Bodies, that will save time and labor, increase efficiency and ease considerably the strain caused by manpower shortage.

"American", appreciating this emergency and desirous of assisting to the utmost, has set up a schedule that will permit the construction of a limited number of a limited type of Bodies. So if you have available a chassis, new or old, phone, wire, or write today for complete details.

Some Reasons Why "Americans" Are TOPS:—

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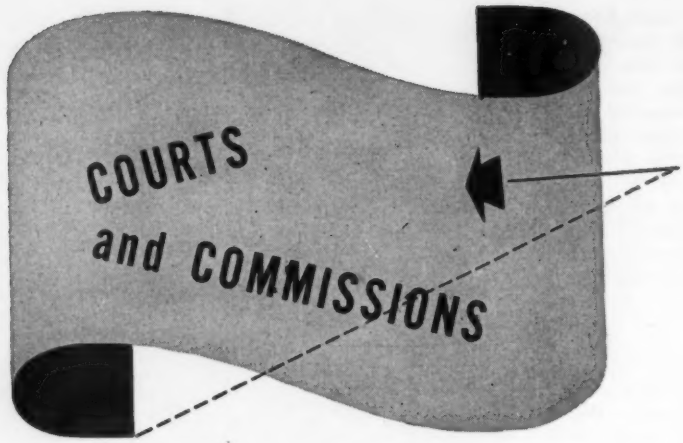


Treasury Neutral On Utility Rate Cuts

The Treasury Department has decided not to oppose reduction in rates of public utilities merely to avert adverse effects on federal revenues. This policy was announced in a statement by Secretary Morgenthau on June 18. He said he wished to contradict "an impression created by recent press articles."

The press articles referred to raised the question whether the Treasury Department might not take steps to avoid the diversion of excess profits tax payments by public utilities through local rate reduction orders by state commissions, following the recent decision of the Michigan Supreme Court in the Detroit Edison case (TELEPHONY, June 3, p. 13).

"The department," Mr. Morgenthau said, "does not wish to be considered as giving even tacit approval to the suggestion being made in some quarters the public utility rate reductions should not be put into effect because one result would be a loss of federal revenue, particularly through reduction or elimination of federal excess profits taxes.

"Public utility rates are under the jurisdiction of public regulatory bodies, usually state public service commissions, set up for the purpose of protecting the public by seeing to it that the rates charged are reasonable. The responsibility is theirs, and if the setting of reasonable rates results in the federal government collecting less excess profits taxes, the Treasury Department is prepared to accept that result," Mr. Morgenthau stated.

V V

Approves Stock Issuance

The Nebraska State Railway Commission recently authorized the Riverton (Neb.) Telephone Co. to issue $1,000 stock to complete a transaction in which it took over an existing exchange.

V V

Commission Orders Refund Of Excess Profits

Two companies have been directed by the Arkansas State Utilities Commission to refund to customers part of their excess earnings during 1943.

The two companies are the Blytheville Water Co., which is to refund approximately $3,000 and the Boone Telephone Co., which is to refund approximately $1,400, according to a recent news dispatch.

V V

Seek to Kill Reopening Of Tennessee Toll Case

Another phase in the long contested Southern Telephone & Telegraph Co. intrastate toll rate case in Tennessee was unfolded June 15 when the company and the Tennessee Railroad & Public Utilities Commission, in separate demurrers and answers, asked the Davidson County Chancery Court to dismiss a petition which would reopen the case (TELEPHONY, June 10, p. 27).

The petition was filed on March 20 by the Nashville Trades & Labor Council, T. P. Loftis, F. L. Medlin and Ben Faucett, with the assistance of State Commissioner Leon Jourolmon, Jr.

The demurrers and answers as filed by the Southern Bell and the commission stated that the labor council and Loftis, Medlin and Faucett were not parties to the proceedings and had no legal right, after the commission had concluded the hearing concerning the lowering of intrastate long distance rates, to ask that the case be reopened. They also challenged the court's jurisdiction.

The Southern Bell case originated in 1941 when the first show cause order was issued directing the company to show why its intrastate rates should not be lowered to the level of interstate rates in Tennessee.

In August, 1943, an amendment was issued to the order directing the company to show why its intrastate rates should not be lowered to the level of its own interstate rates for service over similar distances.

The commission and the Southern Bell reached a compromise agreement last January whereby intrastate rates were revised to effect a reduction of five to 35 cents a call on distances of more than 50 miles. Commission Chairman Porter Dunlap and Commissioner John Hammer signed the agreement but Commissioner Jourolmon dissented.

The commission was asked to rehear the case by the Nashville Trades & Labor Council, but the majority of the commission dismissed the petition while Mr. Jourolmon again dissented.

On March 20, the labor council filed a suit in Chancery Court seeking to reopen the case by asking that the defendants present to the court a complete transcript of the proceedings of the case.

An order to have the case reopened was issued by the commission and signed by Commissioners Jourolmon and Hammer on May 25. Governor Cooper approved the reopening while Chairman Dunlap dissented.

Chairman Dunlap said the demurrers and answers filed June 15 had nothing to do with the commission's latest order to reopen the case.

V V

ICC Authorizes Rate Increase

The Colchester (Ill.) Farmers Telephone Co. was authorized on June 15 by the Illinois Commerce Commission to make effective July 1 advanced rates

for telephone service in Colchester, McDonough county, and vicinity.

The company operated at a $479 deficit for the year 1943, and employment of additional help and other new costs will run that deficit to $1,107 for 1944. The new rates will increase the company's revenue by $2,057 and after allowance for state and federal taxes will increase the company's income by $1,763, thus producing $665 for interest and return on investment.

The present and new net annual rates for various types of service are:

	Present	New
Individual business	$18	$25
Business extension	6	6
Individual residence	14	18
Two party residence	12	16
Four party residence	10	14
Rural switching service	4	6

V V

Summary of Commission Rulings and Hearings

Federal Communications Commission

June 20: Granted authority to Franklin H. Kenworthy to hold the position of vice president of The Chesapeake & Potomac Telephone Co., The Chesapeake & Potomac Telephone Co. of Baltimore City, The Chesapeake & Potomac Telephone Co. of Virginia, and The Chesapeake & Potomac Telephone Co. of West Virginia.

June 23: Granted authority to the Southern Bell Telephone & Telegraph Co. to supplement existing facilities between Jacksonville and Jacksonville Beach, Fla., at an estimated cost of $58,900.

Kansas State Corporation Commission

May 29: Hearing set for July 10 on application of the Grainfield Telephone Co. for authority to make certain rate changes for telephone service at Grainfield and Gove, and discontinue free service between these two points charging a flat rate of 10 cents per call.

Louisiana Public Service Commission

June 13: Case dismissed against the Southern Bell Telephone & Telegraph Co. in the matter of long distance telephone service at Rosedale and vicinity.

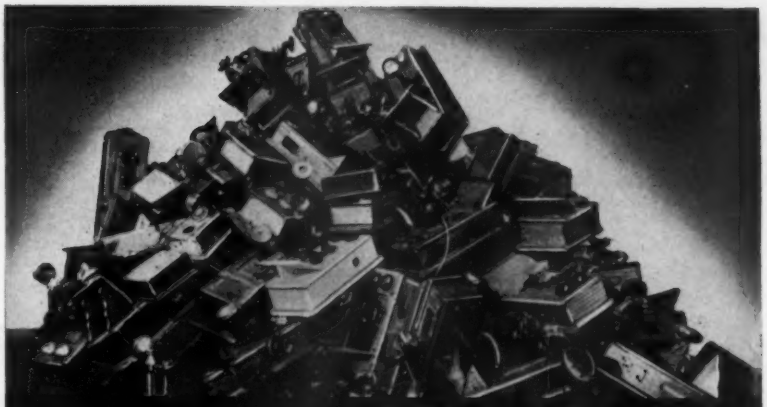
Illinois Commerce Commission

June 27: Case heard regarding the proposed advance in rates for telephone service in Milledgeville and Chadwick, stated in rate schedule I.C.C. No. 3, rendered by the Milledgeville Mutual Telephone Co.

V V

Association Receives Award

The Wisconsin State Telephone Association has been awarded a Certificate of Appreciation by the Chief Signal Officer, U. S. War Department, Washington, D. C. Presentation of the certificate to President E. B. Samp will be made by Major Irving R. Quay, Assistant Signal Officer, Chicago, Ill., Friday, June 30, 1944 at the state capitol in Madison, Wis.



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Well, the "emergency" is here—NOW.

There are practically no new telephones being made. Your old telephones are of greater potential value than they have ever been before — *probably greater than they will ever be again!*

Now is the time to put them to work. Send them to us for Autelco Rebuilding, and receive telephones completely rebuilt to "new telephone" standards — ready for years of further service. Or, we will buy your old instruments (of any standard make), rebuild them in our factory, and then make them available to other telephone companies in need of additional instruments. Either way, you will be helping to ease the shortage of new telephones.

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Send us your old telephones, or a description of the old instruments you have available. Or, ask for a copy of Circular 1640-B, which completely describes this modern service.

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40-CENT MINIMUM WAGE ORDER FOR INDUSTRY

The Wage & Hour Division of the U. S. Department of Labor, through its administrator, L. Metcalfe Walling, on June 21 issued an order providing for a 40-cent minimum wage rate for "communications utilities, including the telephone industry. The order affects all telephone companies having 500 or more stations. Companies having less than 500 stations are exempt from provisions of the federal wage-hour law, under which the recent minimum wage order was issued (TELEPHONY, December 18, p. 12; also see "In the Nation's Capital," in this issue).

The text of the complete order follows:

PART 652—MINIMUM WAGE RATE IN THE COMMUNICATION, UTILITIES AND MISCELLANEOUS TRANSPORTATION INDUSTRIES

Recommendation of Industry Committee 69

Whereas, on September 28, 1943, pursuant to section 5 (b) of the Fair Labor Standards Act of 1938, herein referred to as the act, the Administrator of the Wage & Hour Division of the United States Department of Labor, by Administrative Order No. 221, appointed Industry Committee No. 69 for the Communication, Utilities and Miscellaneous Transportation Industries, herein called the Committee, and directed the Committee to recommend minimum wage rates for the Communication, Utilities and Miscellaneous Transportation Industries in accordance with section 8 of the act; and

Whereas, the Committee included five disinterested persons representing the public, a like number of persons representing employers in the Communication, Utilities and Miscellaneous Transportation Industries, and a like number of persons representing employes in the Industries and each group was appointed with due regard to the geographical regions in which the Communication Utilities and Miscellaneous Transportation Industries are carried on; and

Whereas, on October 25, 1943, the Committee after investigating economic and competitive conditions in the Industries, filed with the Administrator a report containing its recommendation for a 40-cent minimum hourly wage rate in the Communication, Utilities and Miscellaneous Transportation Industries; and

Whereas, after notice duly published in the FEDERAL REGISTER on November 12, 1943, Robert N. Campbell, the Presiding Officer designated by the Administrator, held a public hearing upon the Committee's recommendation at New York, N. Y., on November 30, and December 1, 1943, at which all interested persons were given an opportunity to be heard; and

Whereas, the complete record of the proceeding before the Presiding Officer had been transmitted to the Administrator; and

Whereas, all persons who appeared at the hearing held on November 30 and December 1, 1943 were given leave to file briefs on or before January 17, 1944, respectively; and

Whereas, after notices published in the FEDERAL REGISTER on December 21 and 30, 1943, oral argument was held on January 25, 1944 before the Administrator; and

Whereas, the Administrator, upon reviewing all the evidence adduced in this proceeding and giving consideration to the provisions of the act, with special reference to sections 5 and 8, has concluded that the Industry Committee's recommendation for the Communication, Utilities and Miscellaneous Transportation Industries, as defined by Administrative Order No. 221, is made in accordance with law, is supported by the evidence adduced at the hearing, and taking into consideration the same factors as are required to be considered by the Committee, will carry out the purposes of the act; and

Whereas, the Administrator has set forth his decision in an opinion entitled "Findings and Opinion of the Administrator in the Matter of the Recommendation of Industry Committee No. 69 for a Minimum Wage Rate in the Communication, Utilities and Miscellaneous Transportation Industries," dated this day, a copy of which may be had upon request addressed to the Wage & Hour Division, United States Department of Labor, 165 West 46th Street, New York, N. Y.

Now, therefore, it is ordered, That:

Sec.
652.1 Approval of recommendation of Industry Committee No. 69.
652.2 Wage rate.
652.3 Posting of notices.
652.4 Definition of the Communication, Utilities, and Miscellaneous Transportation Industries.
652.5 Scope of the definition.
652.6 Effective date.

AUTHORITY: § § 652.1 to 652.6, inclusive, issued under sec. 8, 52 Stat. 1064; 29 U.S.C. 208.

§ 652.1 **Approval of recommendation of Industry Committee No. 69.** The Committee's recommendation is hereby approved.

§ 652.2 **Wage rate.** Wages at a rate of not less than 40 cents per hour shall be paid under section 6 of the act by every employer to each of his employes who is engaged in commerce or in the production of goods for commerce in the Communication, Utilities, and Miscellaneous Transporation Industries.

§ 652.3 **Posting of notices.** Every employer employing any employes engaged in commerce or in the production of goods for commerce in the Communication, Utilities and Miscellaneous Transportation Industries shall post and keep posted in a conspicuous place in each department of his establishment where such employes are working such notices of this order as shall be prescribed from time to time by the Wage & Hour Division of the United States Department of Labor.

§ 652.4 **Definition of the Communication, Utilities, and Miscellaneous Transportation Industries.** For the purposes of this order the term "Communication, Utilities and Miscellaneous Transportation Industries" means:

The industry carried on by any wire or radio system of communication or by messenger service; by any concern engaged in the production and distribution of gas, electricity or steam, the distribution of water or the operation of sanitation facilities; and by any concern engaged in such transportation by rail, water, pipe-line, motor vehicle, or other means, as is not covered by the wage orders for the Railroad Carrier, Property Motor Carrier and Passenger Motor Carrier Industries, or in related activities (including stevedoring, consolidating, forwarding, and packing) not covered by those orders; *Provided,* That the definition shall not include any activity covered by the definition of any other industry for which the Administrator has issued a wage order or appointed an industry committee.

§ 652.5 **Scope of the definitions.** The definition of the Communication, Utilities and Miscellaneous Transportation Industries covers all occupations which are necessary to the operations of the Industries, including clerical, maintenance, shipping and selling occupations: *Provided, however,* That where an employe covered by this definition is employed during the same workweek at two or more different minimum rates of pay, he shall be paid the highest of such rates for such workweek unless records concerning his employment are kept by his employer in accordance with applicable regulations of the Wage & Hour Division.

§ 652.6 **Effective date.** This wage order shall become effective July 17, 1944.

Signed at New York, N. Y. this 12th day of June 1944.

L. METCALFE WALLING,
Administrator.

[F. R. Doc. 44—9092; Filed, June 21, 1944; 4:40 p. m.]

V V

William T. Tilden Killed in Action

William T. Tilden, 19, son of T. A. Tilden, chief engineer of the North State Telephone Co., High Point, N. C., was killed in action in Italy on June 1.

William was born March 31, 1925, at High Point, N. C., and after receiving his grammar and high school education in local schools, attended the Virginia Polytechnic Institute, Blacksburg, Va., for one year. During his summer vacations, William worked for

the North State company which reports that his work was highly satisfactory.

He was inducted into the Army September 2, 1943, and received his basic training at Camp Blanding, Fla. He was sent overseas in February, 1944, where he served in North Africa and Italy.

Surviving, in addition to his parents, are a brother, Ralph, and a sister, Martha Lou. Robbins Tilden, William's uncle, is secretary-treasurer of the North State Telephone Co. The following editorial, in tribute to William Tilden, appeared in *The Enterprise*, High Point newspaper on June 23:

Pvt. William T. Tilden, just "Bill" to his many friends, was only one of the many thousands of American boys who were inducted into the armed service last September. That one so young should have been assigned to the infantry, that part of a division that goes into battle after bombers and tanks have done deadly work, to mop up, take care of machine gunners and snipers, has occasioned some comment here. Still, there is little need to assign reasons for the decision of our war planners to draft 18-year-old boys. The essential reason, as we know, is that youth has what it takes in coolness, dash, nerve and sinew; and, in addition, is rarely frustrated by such inhibitions as home-sickness and worry, common among older, married soldiers.

When all is said, war's toll of the flower of American youth is dreadful to contemplate. The fact, too, that the boys are called upon to liquidate a condition for which they are in no way responsible, adds to our sorrow and the mystery of it all.

But there is neither confusion nor mystery about our love of freedom; nor do we count our lives dear unto ourselves when we are called upon to defend our America or to fight against tyranny anywhere in the world, when our way of life is threatened. Youth, even more than adulthood, senses the horror of brutality and oppression.

Bill Tilden was devoted to his parents, his brother and sister. Early he became a member of Wesley Memorial Methodist church and lived rightly and vitally. We may be sure, too, that the obedience he learned here made compliance with orders in the Army an easy task. In the home where he grew up, it has been said, "Bill was only a baby." What mother has not said something like that after her son has made the supreme sacrifice? No mother ever feels that her sons have grown up.

Yet we know that Bill and many other youthful soldiers who reached their 19th year, in offering their bodies a living sacrifice, have done a man's part. When can their glory fade? For of such are both the power and the glory of these United States in the hour of trial.

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Here are three complete tools that can be carried easily in a small car, as the longest section is only 8' 4". The combination consists of:

	Length	Weight
No. 1-WE Pruner Head Section	30 in.	2¾ lbs.
No. 44-WE Saw Head Section	30 in.	1½ lbs.
	100 in.	2½ lbs.
Intermediate Extra Section	100 in.	2¼ lbs.
Bottom Extra Section		
No. 1-WE Pike Pole Attachment	8 in.	1½ lbs.
TOTAL WEIGHT		10½ lbs.

From these can be made any one of three tools, as follows:

1 Heavy Duty Tree Trimmer (1¼" capacity)	18½ ft.
1 Fast-cutting Pole Saw	18½ ft.
1 Test Pike Pole	16½ ft.

When longer lengths are required, extra sections can be specified—4 or 6 ft. long.

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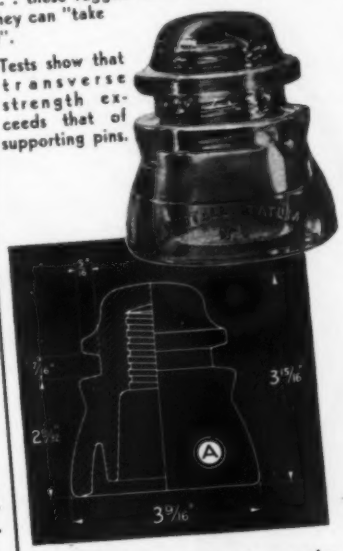

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New Army Procedure Announced For Procuring Telephones

The Office of the Chief Signal Officer has informed the industry that a change has been made in existing procedure covering the paper work necessary to obtain additional rented telephone facilities. In the past, the local Army service command transmitted to the Office of the Chief Signal Officer traffic information, statements of main station lines and station developments, classification of telephones, and other data. The Chief Signal Officer then issued the necessary authority to the service command. The latter in turn furnished a letter of military necessity to the telephone company. At the same time, the Chief Signal Officer transmitted to the War Production Board a letter recommending approval of the application.

Under the new arrangement now made, the local service command will transmit directly to the telephone company complete traffic data together with a letter of military necessity, a computation of equipment requirement and classification of telephones, and a statement relating to curtailment of usage (particularly with respect to the provisions of outstanding Army directives). The telephone company will then transmit it, with its project application directly to the WPB.

This change in no way relaxes current restrictions on the provision of telephone service for Army installations; neither does it modify procedures now in effect with regard to the leasing of tie lines or private lines as covered in War Department Circular 222, Section 4.

V V

N. M. Shenk Goes With Peninsular Telephone Co.

Norman M. Shenk was recently appointed traffic engineer and assistant to the general commercial superintendent of the Peninsular Telephone Co., Tampa, Fla., a new position which was made necessary by the continued growth of the Peninsular system in Florida. War industries and military posts located in the company's territory have increased the total number of stations served by the company from 60,000 to 80,000 in three years and have created many new problems.

Mr. Shenk began his telephone career in 1926 as an installer's helper for the old Mutual Telephone Co. of Erie, Pa. In 1930 he graduated from the University of Pittsburgh after having worked at intervals for the Mutual company in various plant and engineering department assignments. For the next six years he was with Pennsylvania

NORMAN M. SHENK

Telephone Corp., successor to Mutual Telephone Co., serving four years of that period as Erie district manager.

Following two years as commercial superintendent of Jamestown (N. Y.) Telephone Corp., Mr. Shenk entered the employ of Investors Telephone Co., which operates seven telephone companies in nine states. His assignments with that organization included two years in the dual capacity of general commercial superintendent of all companies in the system and general manager of Iowa State Telephone Co. with headquarters at Newton, Iowa. For five years Mr. Shenk served as vice president and general manager of Central Carolina Telephone Co., a unit of the Investors organization serving 28 exchanges in North Carolina and South Carolina with general offices at Southern Pines, N. C. Mr. Shenk resigned the latter position to join the Peninsular company, moving to Tampa on May 1.

Mr. Shenk has just recently been able to locate a home in Tampa and has moved his wife and two young children there. He has been a member of the Independent Pioneer Telephone Association since 1941 and has served as a director of several state telephone associations and as secretary of the North Carolina Independent Telephone Association.

V V

Bertha M. Brossman Injured

MISS BERTHA M. BROSSMAN, assistant secretary-treasurer of the Denver & Ephrata Telephone & Telegraph Co., Ephrata, Pa., is in St. Joseph's hospital, Lancaster, recovering from a shock received June 20 when she was run down from the rear by an automobile. It is believed, however, that no permanent injuries were incurred.

BUY BONDS
FOR VICTORY

Letter Commends Service Rendered by "Public Servants"

In a recent letter to the editor of *Oak Leaves*, an Oak Park (Ill.) publication, signed "210 Harrison," the writer commended prompt telephone service received when reporting a fire. The letter read:

"The total elapsed time—from our picking up the telephone to the appearance of the first fireman — could not have been more than three minutes. Service! Too often we folks forget about those who serve us, especially those who do the 'dirty work,' or remember them only when we think they need a 'bawling out.' There is always a telephone operator waiting to give service, and what alertness and patience her job requires—and what perfection we demand of her. How many of us can say that we have never 'tongue-lashed' an operator, and for whose mistake? So let's be a little more appreciative and thoughtful of our public servants. From us, many thanks to that telephone operator and to those firemen."

V V

New Telephone Service Warns Army Airfields of Storms

A Severe Storm Warning Service, recently inaugurated by the Army in Nebraska for the purpose of protecting its airfields and planes from damage by tornadoes, heavy thunderstorms and severe windstorms is operating at Kearney, Grand Island, Lincoln, Harvard, Bruning, Alliance and Scottsbluff with the aid of the telephone.

The service was organized by the base weather station with the cooperation of district and county civilian defense chairmen and county agents. Two representatives are stationed in each precinct with instructions to notify headquarters via telephone of the approach of any storm; headquarters, in turn, sends warnings to the various airfields.

V V

Signal Corps Citation Awarded American Telephone & Telegraph

A Certificate of Appreciation "for loyal and patriotic service" was presented the American Telephone & Telegraph Co. on June 23 by Maj. Gen. Harry C. Ingles, Chief Signal Officer of the Army, at ceremonies in the main hall of the American Telephone & Telegraph headquarters building, New York City.

Accepted by the company's president, Walter S. Gifford, the certificate acknowledged the firm's "loyal and patriotic service rendered the Signal Corps . . . in the accomplishment of its vital mission in the national emergency.

"Your particular job was to help the Signal Corps provide communications throughout the United States—communications which made it possible to supply the instruments of war needed for such a momentous undertaking," General Ingles told the American Telephone & Telegraph personnel assembled for the ceremony. "You have a right to be proud of that job."

V V

Peru Claims to Have Highest Telephone Lines

G. H. Braddock, managing director, Compania Nacional de Telefonos Del Peru, Lima, Peru takes issue with the article in the March issue of TELEPHONY, in which it is stated that it is believed the world's highest telephone wires are a part of the cable that crosses the Andes Mountains from Chili to Argentina, where, on the Argentina side, they are 12,300 feet above the sea.

In a letter to TELEPHONY, Mr. Braddock states:

"With reference to the note headed 'World's Highest Wires,' may it be pointed out that the toll lines of the National Telephone Co. of Peru, from Lima to Oroya and beyond, cross the Andes at over a height of 4,837 metres as the route is considerably higher than the official height shown on the notice board in the accompanying photograph."

[EDITOR'S NOTE: *We appreciate Mr. Braddock's interest in bringing this information to our attention. This would mean that the Peru toll lines are at a height of 15,869.39 feet.*]

V V

Three Marines Defy Flood; Save Communications Equipment

In their constant battle to maintain communications, three Marines stationed at Cape Gloucester, New Britain, have successfully combated the enemy, an earthquake, and a flood, according to a recent story written by M/Sgt. John W. Black, of Woodbury, N. J., a Marine Corps combat correspondent.

S/Sgt. James H. Privette, Statesville, N. C.; Sgt. Jacob R. Spackman, Bells Landing, Pa., and Cpl. William K. Harding, Queens Village, Long Island, N .Y., have been credited by their commanding officer, Capt. William D. Moody, with saving invaluable communications equipment during a flood which swept through their bivouac area.

"By their determined efforts and heroic disregard for their own safety, our communications were restored and our howitzers were ready to fire within a few minutes," declared Captain Moody.

"Shortly before midnight the worst tropical storm I've ever experienced broke. There was a deluge of rain, accompanied by a terrific electrical display. In a few minutes the small stream along which we were sited overflowed its banks, uprooting trees and sweeping away vehicles," he said.

"The whole area was waist-deep in water. The stream was now a raging torrent, filled with all kinds of debris, trees, and even the bodies of Japanese who had been killed several days before. Submerged bomb craters and foxholes added to the treachery of movement.

"After stranded personnel had been evacuated, they repeatedly returned through the most dangerous area and carried vital equipment to safe places. In spite of the continued increase in the intensity of the torrent, only a direct order could keep them from making additional trips for equipment in the flooded area," the captain reported.

V V

Marine Communicator Active In Five Beach Landings

Pfc. James Connerton, Elmhurst, L. I., N. Y., a 21-year-old communicator in a Marine infantry unit who missed the assault on Guadalcanal, has participated in all five of the beach landings made by the Marines in their leapfrog drive of 110 miles along the northern New Britain coast, according to a recent story by S/Sgt. A. Hallman, Sr., a Marine Corps combat correspondent.

Private Connerton landed on Cape Gloucester December 26, and helped lay one of the first combat telephone lines onto the air strips when they were captured.

A few weeks later, he was with his unit when a landing was made against severe opposition at Natoma Point in Borgen Bay. This time he was on visual communication.

Since then he has jumped off landing boats at Alulu Bay, Iboki Plantation (Rein Bay), and Willaumez Peninsula. On these three jobs he handled a walkie-talkie radio in advance units of the assault waves.

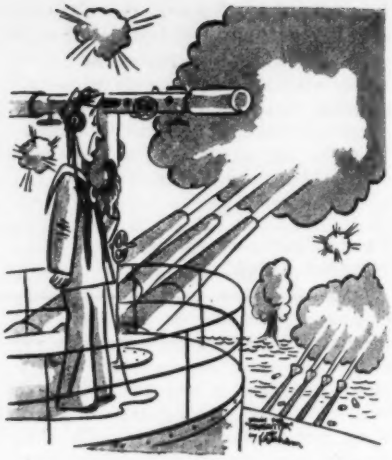
Small Exchange Circuit Analysis

(Continued from page 12)

sleeve of the cord and flowing through contacts 5 and 6 of the through-and-night key operates relay B. When relay B operates, closing contacts 12 and 13 and 32 and 33, the 750-ohm, non-inductive coil is placed across the tip and ring to cut-off ringing from the trunk line. This function also holds the circuit until the operator closes the listening key and challenges the line. This holding coil has an effect similar to a lifted receiver on a telephone as it stops the ringing when the originating call is from a dial exchange, or if it is from a manual office it will light the supervisory lamp. If it were not for this coil, the operator would receive this ringing current in her ear as she operates the listening key. Relay C in *Fig. 1* and condenser C are completely short-circuited by the closing of contacts 22 and 23 of relay B. Also contacts 14 and 15 open the circuit to the front supervisory lamp preventing it from lighting.

Fig. 6 indicates the circuit used in connecting a trunk line to an extension telephone. The talking circuit is shown by the heavy lines, while the lighter lines indicate the auxiliary circuit. It will be noted that the tip of the circuit is connected directly through from the tip of the trunk line to the tip of the extension line. The ring side of the circuit with relays C and D in series and with relay C shunted out by the closing of contacts 22 and 23 of relay B, relay B is operated from negative battery on the sleeve of the trunk jack through contacts of the through-and-night key and then through the winding of relay B to ground. The operation of this relay also closes contacts 12 and 13 and 32 and 33, placing the holding coil, the 750-ohm, non-inductive winding, wound on the same spool as relay E, through contacts 31 and 32 of relay E across the line while the operator is ringing the desired telephone.

This makes it unnecessary for the operator to remain on the line with her listening key operated to hold the circuit. Were it not for this feature, after she had answered the trunk signal and had stopped the ringing from the main exchange (if the shunt provided by the operator circuit were removed from the cord circuit), the supervisory lamp in the main exchange



"Louder, please! It's a trifle noisy here."

would indicate to that operator that the circuit was idle or was ready to be disconnected. Also if the main exchange were dial the switches would be released.

Relay E is locked in an operated position by contacts 21 and 22 of relay C. This is necessary after the called party hangs up, because if E were allowed to restore, placing the holding coil across the tip and ring of the circuit, no disconnect signal would be provided to the main exchange. Relay C is rendered inoperative by the shunting contacts 22 and 23 of relay B. The only battery required for the local circuit is that necessary to operate relay B and E and the local supervisory lamp. Relay D obtains its operating battery from the main exchange over the talking circuit.

When the operator plugs into the desired extension line, ground on the sleeve of the jack will light the back supervisory lamp through contacts 21 and 23 of relay D. When the called party answers relay D will be operated since the subscriber's instrument completes the circuit from tip to tip of the cord circuit. Relay D does not operate prior to the removal of the receiver because there is no current in that part of the circuit.

Current flowing through the subscriber's telephone will cause relay D to operate opening contacts 21 and 22 and to extinguish the supervisory lamp. This also closes contacts 22 and 23, placing ground from the sleeve of the jack through the winding of relay E. The closing of contacts 11 and 12 lock relay E in an operated position. Contacts 31 and 32 are opened at this time, removing the holding coil from the circuit, as the subscriber's instrument will hold the connection. The operation of relay B opens contacts 11 and 31. Then ground on contact 11 and negative battery on 31 (see *Fig. 1*) causes talking battery to be supplied from the main exchange over the trunk. The only battery required from the local circuit is that used for the operation of relays.

In many PBX systems there are some telephones that require service after the operator is off duty. This service may be provided by setting up what is commonly referred to as "night connections." By connecting a cord pair to a special night jack. In the beginning of the chapter, in *Fig. A*, the circuit of a trunk line to the main exchange had included a "night jack." With the front cord inserted in the night jack and with the back cord placed in the desired extension line, the cord circuit functions as indicated in *Fig. 7*. Operation of the battery cut-off key and the through-and-night key will strip the circuits of nearly all of the cord attachments. Talking battery has been removed by the opening of contacts 1 and 2, and 3 and 4 of the trunk-and-through key.

Even though contacts 6 and 7 are closed to the winding of relay B cord circuit battery has been removed by the opening of the battery cut-off key and it cannot operate. Contact 8 of the through-and-night key and contacts 21 and 22 of relay B provide a shunt around relays and condensers C and D, rendering them inoperative. The circuit becomes a dry connecting link between the extension telephone and the main exchange. In a common battery manual exchange the extension subscriber will get the main exchange operator when the receiver is removed from the hook. In a dial exchange the subscriber will dial through the main exchange in the same manner as the main exchange subscribers.

(To Be Continued)

V V

Marines Repair Communications; Commended by Admiral Halsey

Marine Cpl. Albert Newman, Brooklyn, N. Y., was commended by Adm. William F. Halsey for helping to restore telephone communications in the Cape Torokina area of Bougainville last November 2, Marine corps headquarters, Washington D. C., announced recently.

To re-install communications, Corporal Newman and two companions voluntarily crawled through 600 yards of beach defenses where Marines had been ordered to fire at anyone moving in the darkness.

The telephone line had been cut just as word was received that three Japanese transports were approaching the beach.

Communications Fund Cut; Ickes Threatens Coal Rationing

Secretary Ickes complained on June 21 that the interior department "just can't operate" properly because Congress cut its appropriation for long distance telephone calls and telegrams to $40,000 a year from the $375,000 asked.

The interior department had sought $205,000 for long distance telephone calls and between $170,000 and $220,000 for telegrams in the fiscal year beginning July 1.

Secretary Ickes asserted at a press conference that as a result of the cut, plus the refusal of Congress to provide any money for a coal conservation campaign, "we may have to come to coupon rationing for coal, which we think is the worst possible thing to do."

Without a great deal more money for telephone and telegraph expenses, Mr. Ickes said, the solid fuels administration cannot properly direct coal distribution.

V V

Bell Company Endeavors To "Recapture" Extensions

The New York (N. Y.) Telephone Co. recently began a canvas of its business customers throughout New York state asking if they would make a review of their telephone instruments to determine if, by taking a wartime view of convenience, they could release a number of extension telephones without unduly disturbing the conduct of their business.

The New York company pointed out that this is but one of a number of steps taken to help relieve the telephone shortage situation. Central office equipment has been loaded beyond its designed capacity. Many thousands of old type telephones still capable of giving satisfactory service have been reconditioned and put back into use. The number of telephones in the working stock has been reduced. The number of homes being served by party lines instead of private lines has increased. In these and other ways, the company has been able to provide service for thousands of applicants who otherwise would be without it.

V V

New Patented Handset To Ease Telephoning

Telephoning is to be made even easier than it is now, when a new hand set just patented by Oscar A. Shann of Short Hills, N. J., comes into use, according to a recent news dispatch. It does away with the present necessity of lifting the instrument from its cradle before the number can be dialed.

With the new set, contacts are so arranged that the line is ready for dialing when the set is merely tilted sidewise on the cradle. At the same time, a small lamp is lighted and a mirror on the inside of the handle reflects the light down on the dial, making the numbers easier to see.

If the line is busy an amplifier renders the busy buzz audible at a moderate distance. If the call is going through on a clear line the buzz does not sound, the user then lifts the instrument, automatically extinguishing the lamp, and the telephone is ready for use.

Rights in the patent have been assigned to the Bell Telephone Laboratories, Inc.

V V

Named Independent Manager

O. G. STORM from Osawatomie, Kan., recently became manager of the Oswego (Kan.) office of The Central Kansas Telephone Co.

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Like all Holtzer-Cabot ringing equipment, the 4-frequency motor generator has the unqualified approval of the engineering and service departments of all major telephone companies.

Let Holtzer-Cabot Engineers help you solve your ringing problems. Write for Bulletin 1310-02.

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KELLOGG ANNOUNCES ORGANIZATION CHANGES

JAMES G. KELLOGG, president, Kellogg Switchboard & Supply Co., Chicago, has announced the appointment of F. M. Parsons as sales manager and C. D. Manning as executive assistant to the president, both appointments becoming effective on June 26.

F. M. PARSONS

Mr. Parsons centered his entire business career in the telephone industry and is well known throughout the industry. He assumes his new position after having been associated with the Kellogg company in various capacities for approximately 15 years.

Raised in the telephone business by his father, a pioneer Independent telephone man, "Red" Parsons climbed poles and strung wire for the former North Dakota Independent Telephone Co., Fargo, N. D. This company was later acquired by the Northwestern Bell Telephone Co., but Mr. Parsons continued his employment there until the first World War broke out.

During the war, Mr. Parsons served overseas with the U. S. Army Signal Corps in the 108th Field Signal Battalion, 33rd Division. At the close of the war in 1919, he joined the Griggs County Telephone Co., Cooperstown, N. D., and after serving two years as wire chief, returned to the Northwestern Bell company as wire chief and area manager at Mandan, N. D.

In 1922, Mr. Parsons was transferred to Bismark as wire chief of the Bismark exchange and assistant district plant chief. This connection was maintained until 1924 when he joined the Kellogg Switchboard & Supply Co. For four years Mr. Parsons served telephone companies in northern Minnesota, North Dakota and South Dakota as a Kellogg field representative.

Re-entering the operating field in 1928, Mr. Parsons became associated with the Central West Public Service Co., with headquarters at Omaha, as superintendent of the telephone division. He supervised the operation of Central West's entire telephone network which then comprised properties in Virginia, North and South Carolinas, Illinois, Iowa, Minnesota, North and South Dakotas and Nebraska.

C. D. MANNING

In 1934 Mr. Parsons rejoined the Kellogg company. For three years thereafter he was manager of the switchboard sales department, later being promoted to eastern division manager. Five years later, in 1942, he became supervisor of the Kellogg company's field staff, which post he has held until his recent appointment to the sales manager's position.

In addition to his supervisory work over the Kellogg field staff during the past 10 years, Mr. Parsons has also been the company's liaison man serving the War, Navy and other government departments at Washington, D. C.

Mr. Manning joined the Kellogg company in 1940 as executive assistant to the president after 13 years' experience with several phases of the communication business, both in the United States and in foreign countries. For the past two years he has been the company's general sales manager. He will continue to represent Kellogg on the executive committee and on the board of directors of the United States Independent Telephone Association.

V V

Little-Known Rubber Products Instrumental in Saving Lives

The stories told about rubber in World War II usually emphasize dramatic items such as life rafts and bullet-sealing gas tanks—yet the little-known things probably have built up an equally impressive record in saving lives. Herbert E. Smith, president, United States Rubber Co., tells the story of these little-known things, and stated it is "representative of the rubber industry."

Among the many products in which rubber is used are medical supplies, sea boots, one-piece lifesaving suits, lifesaving jackets, self-sealing gasoline tanks, bullet-sealing hose, three-ounce heating pads and seven-men rubber life rafts.

Of interest to the telephone industry is rubber insulated assault wire—weighing 28 pounds to the mile compared with 132 pounds for regular telephone wire. It can be carried on the back of a single soldier to an advanced position, keeping him in contact with telephone field headquarters at all times.

V V

Philips Issues Booklet

An elaborate and attractive 26-page booklet, describing its line of electronic products and picturing its plants and facilities was issued recently by the North American Philips Co., New York City. Some of the company's products of interest to the telephone industry are carrier systems, amplifiers, loading coils, loudspeakers, measuring instruments, fine and plated wires.

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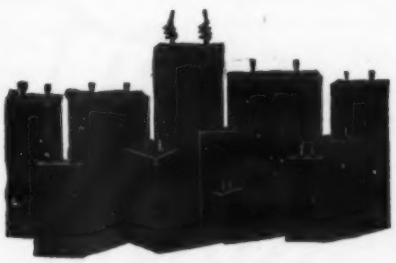

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Army commanders in the front lines, in England and in the United States are in instantaneous contact through ultra-high speed radio channels that insure perfectly coordinated control of the operations. Information on the progress of our troops at scores of points is flashed in a matter of seconds to General Eisenhower's headquarters in England and on to the War Department in Washington.

As pieces of the jig-saw puzzle are fitted together, both military advice and reinforcements in men and material are funneled to vital points. Similarly, through the intricate Army communications system, all branches of the Army—air forces, ground forces and service forces—are able to fight as a well-coached team.

"D" day found the U. S. Army Signal Corps ready with a system expanded, streamlined and foolproofed during the years the United States was gathering its full strength for the all-out blow. Radio and landline telephone and telegraph stations were installed at strategic points and equipped with ingenious apparatus designed and refined by the nation's greatest electronics experts. Alternate fallbacks were provided so that if one channel failed, another was ready to fill the gap and guarantee continuous communication.

From the instant the first landing ship shoved off in the English channel for the campaign of liberation, communications control has been maintained without a hitch.

Three weeks before the invasion, in an address observing the centennial of the telegraph, Maj. Gen. Harry C. Ingles, Chief Signal Officer, said:

"Success in fast moving war is in direct proportion to the efficiency of the communication system. The United States equipment, methods and personnel are the best in the world."

The same day Brig. Gen. Frank E. Stoner, chief of the Signal Corps' Army Communications Service, sent a six-word radio-teletype message, "This is what God hath wrought" completely around the world—through four relay stations—in three and one-half minutes to demonstrate the system's speed.

For months before the new European offensive opened, the Army Communications Service had been handling upward of 6,000,000 words per day—dealing with combat orders, supply, transportation, production and every other phase of the war effort. These were the messages that assembled the men, the planes, the tanks and the supplies, and coordinated the plans for the invasion armies. When the attack began, the Signal Corps smoothly stepped up the pace to handle the increased volume of traffic, and diverted additional facilities to the press and radio so that the nation could receive up-to-the-minute information on the progress of the undertaking.

Nerve center of the Army's worldwide communications system is the huge War Department Signal Center. From here circuits fan out to every portion of the world where United States forces are stationed, and are connected with secondary networks reaching into tanks, airplanes and front-line foxholes. The Signal Center itself combines streamlined message-handling methods — most of it semi-automatic—with the most modern types of radio and wire equipment. It is connected by remote control with powerful stations beamed to London, Algiers, Teheran, Naples, Brisbane, Chungking, Moscow, New Delhi, Asmara, Accra, Recife and various other points in the theaters of operation. The transmitters range in power from one to 40 kilowatts and complete diversity and high frequency receivers incorporate the latest developments of radio engineering. Several radio transmission methods are used; the ordinary international Morse code, voice, the Boehme siphon system in which a stylus converts the dots and dashes into a staggered line on tape, the radiotype system which handles 100 words per minute, and radioteletype which operates at 60 words per minute.

Within the United States, the system extends — often over commercial circuits—to all military installations, production centers and ports of embarkation so that the War Department has fast and constant control over training, supply and production activities.

For the first time in the history of warfare, high commanders in Washington may direct—instantly—the operations of our military forces throughout the world, without the loss of a second's time.

V V

Issues New Catalog

The Audio Development Co., 2833, Thirteenth Ave., S., Minneapolis 7, Minn., recently issued a new catalog which covers the company's line of transformers, reactors, filters, equal-

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V V

McCanne Elected Director of National Sales Group

Lee McCanne, secretary and assistant general manager of the Stromberg-Carlson Co., Rochester, N. Y., recently was elected a director for district No. 2 of the National Federation of Sales Executives. District No. 2 comprises the sales executives club in New York City, Newark, N. J., Albany, N. Y., and Rochester.

The sessions of the federation's annual meeting were held recently at the Edgewater Beach Hotel, Chicago, Ill. Stanley H. Manson, manager of public relations for the Stromberg-Carlson Co. was present.

Mr. McCanne was president of the Rochester Sales Executives Club in 1943. During his term he inaugurated the "sales clinic." The Rochester innovation earned for the sales executives club of that city the national federation's annual cup award for outstanding contributions to the sales profession.

V V

News-Letter to Service Men

Paper Manufacturers Co., Philadelphia, makers of small paper rolls for teletypewriters, is issuing a monthly news-letter called, "The Chatterbox," to its employes in the armed forces. The May letter was devoted to the publication of names and addresses of all employes in the service so they can communicate with one another.

Obituary

JOHN W. MANNING, 50, for a number of years associated with his father in the operation of the Carolina Telephone & Telegraph Co. exchange at Williamson (N.C.), died at Williamson on June 19.

V V

Texas Independent Sold

W. R. DUFF, employe of the Texas Telephone Co., Sherman, Tex., recently purchased the Gunter (Tex.) Telephone Co. from J. T. ADAIR of Dallas. MRS. DUFF will operate the Gunter plant.

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Length	Weight
30 in. Pruner	2¾ lbs.
30 in. Saw	1½ lbs.
48 in. Section	1½ lbs.
48 in. Section	1¼ lbs.

Total Weight 7 lbs.
This combination can be quickly and easily assembled to make either of these two tools:
1 Heavy Duty Tree Trimmer (1¼" capacity) 10½ ft.
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If longer lengths are required, specify extra sections 6 or 8 ft. long, or additional 4 ft. sections to make the necessary length.

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SUBJECT TO prior sale the following used equipment, in good operating condition, is offered F.O.B. storeroom in Butler, Pa.

(a) 1 Kellogg magneto switchboard 12 lines, 3 trunks, 3 connecting circuits, handset operator's telephone with #23 type A. E. Co. dial—$50.00

(b) 1 Western Electric cordless magneto switchboard, 10 lines, 5 trunks, 3 connecting circuits with desk stand operator's telephone and #23 type dial—$50.00

(c) 1 Type H.D. size 12,300 watt D. C. generator No. 372906 volts 65, speed 1750, amps. 4.6 with 4" steel pulley. Manufacturer: Holtzer-Cabot Electric Co., for Automatic Electric Sales Corp.—$20.00

(d) 1 Direct connected four cylinder engine and generator. Universal type K. D. serial #8279, complete with American Bosch magneto and Zenith carburetor, governor, and built-in gasoline tank. Manufactured by the Universal Motor Co., Oshkosh, Wis.

#5530 Compound wound generator, volts 65, R.P.M. 1125, 62 amperes. Manufactured for The Universal Motor Co., by Kurz & Root Co., Appleton, Wis.—$500.00

Write or telephone Plant Superintendent, 218 S. Washington St., Butler, Pa. Telephone: Butler 4041.

HELP WANTED

WANTED: Combination Plant and Construction Man to assist in operation of five telephone exchanges, 900 stations. Three exchanges equipped with Dial North Electric Boards. Write, Community Telephone Co., Mohall, North Dakota.

WANTED: Starting new crews—need linemen, apprentice linemen for work on maintenance and construction crews. Permanent work for right men. Write Illinois Central Telephone Co., Clinton, Ill.

WANTED: Telephone Accountant—qualified to supervise all phases of telephone accounting for Class A companies. Give full information as to age, experience, draft status, etc. Attach small photograph. Write Telephone Services, Inc., 16th Floor, Lincoln Tower, Fort Wayne, Indiana.

WANTED: Combination telephone man for locally owned Independent telephone company, 2,000 stations north central Indiana. Permanent position. Write Box No. 2078, c/o TELEPHONY.

WANTED: Central Office equipment repair man for Strowger Automatic equipment. Exchange operating over 15,000 stations, located in Middle West. Excellent working conditions and wages. In reply furnish complete information as to age, experience, and draft status. Write Box No. 2077, c/o TELEPHONY.

HELP WANTED

WANTED: Starting new crews. Need construction foreman familiar with general outside telephone construction work. Also need linemen. Permanent employment to right man. Age no object if you can produce. Write, Plant Superintendent, Illinois Central Telo. Co., Clinton, Ill.

FOR SALE

FOR SALE: Three line units for No. 1800 type W. E. sectional type switchboard consisting of one No. BA-12 file line unit equipped with 1,000 ohm ringers and gongs, $30.00, and two No. BB-7 5 line units equipped with 1,600 ohm ringers and gongs, $35.00 each. Also, one new No. 1830-C Graybar annunciator unit consisting of 30 jacks and 30 ring down signals complete with handset—for use in No. 18-C Graybar interphone system for hotels, schools, hospitals, apartments, clubs, etc., price $65.00. Write, T. L. Leonard Electric Co., 4 N. 8th St., St. Louis, Mo.

WANTED TO BUY

WANTED: Individual wants to buy single exchange with 300 to 500 stations. If interested give number of company-owned stations, gross revenues showing toll and exchange income, and any additional information on the property. Write Box No. 2079, c/o TELEPHONY.

RECONDITIONED

W. E. CO. RESISTANCES

NO. 18 AND 19 TYPES

A FEW OF THE MORE WIDELY USED ARE LISTED HERE

18-AC	500w	18-BC	470w	18-F	150w
18-AE	600w	18-BF	284w	18-G	200w
18-AJ	400w	18-BH	1000w	18-K	80w
18-AP	245w	18-C	83w	18-N	180w
18-AR	55w	18-D	120w	18-T	50w
18-B	40w	18-DP	18.75w	18-U	100w

19-A	37w x 37w	19-GW	15w x 17w
19-AD	150w x 150w	19-GY	18w x 19w
19-C	48w x 83w	19-H	40w x 120w

OTHER RESISTANCES IN STOCK

ADVISE US OF YOUR REQUIREMENTS

BUCKEYE

TELEPHONE & SUPPLY CO.

COLUMBUS, OHIO

Reconstructed Equipment

Kellogg or Dean Talk through repeating Coils @	$0.75
Western Elec. or Kellogg New Composition Rec. Shells and caps @	.45
Kellogg, Dean, Monarch, Western Elec. or S. C. Composition Mouthpieces @	.55
Western Elec. S. K. 35-35 Retard Coils @	1.00
Stromberg 2 Cond. Swbd. Plugs for No. 11 drops 40c ea., 3 Cond. No. 55N @	.35
Swbd. Cord Weights @	.20
Reliable Elec. No. 7A or T Fiber Fuses @	.05
L. M. Ericsson Watch case Rec. less band or cord @	.70
48 Volt Swbd. Lamps per 100 @	5.00
Kellogg 103 1 M. F. Condensers @	.40
Western Elec. or Automatic Elec. 2 M. F. Condensers @	.35
Western Elec. No. 323 Transmitters less back @	1.15

REBUILT ELECTRIC EQUIPMENT CO.

1704 WEST 21st PLACE

CHICAGO 8, ILL.